26. The method of claim **23**, wherein said non-bactericidal day or said non-bactericidal day mineral are synthetic.

27. The method of claim **23**, wherein said non-bactericidal day is a smectite day, an illite clay; or a rectorite clay.

28-33. (canceled)

34. A method of determining whether a day has bactericidal properties, wherein said method comprises chemically and/or mineralogically analyzing said clay to determine the presence of a reducing agent comprising pyrite or marcasite therein or measuring the oxidation-reduction potential of a slurry containing said day.

35-36. (canceled)

37. A synthetic antibacterial day or day mineral, wherein said antibacterial clay or day mineral is produced by:

synthesizing a clay or day mineral or by treating or altering the chemistry of a natural clay or day mineral to yield a synthetic antibacterial day or day mineral containing within its crystal structure or within its exchange positions an antibacterial effective amount of a reducing agent; wherein said reducing agent ferrous iron and renders said clay or day mineral antibacterial.

38-43. (canceled)

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